

# The human(in-the-loop)<sup>3</sup>

## Algorithmic inequality and the law

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### **Understanding and addressing digital inequalities**

Florence | 20<sup>th</sup>/21<sup>st</sup> Nov. 2025

Centre for a Digital Society | Centre for Media Pluralism and Media Freedom

# Overview

- Context
- Non-discrimination vs Fairness vs Bias
- Countering digital discrimination
- Augmented human in the loop in the loop in the loop
- Society in the loop

# Context

Example: Algorithmic Assessment in hiring decisions

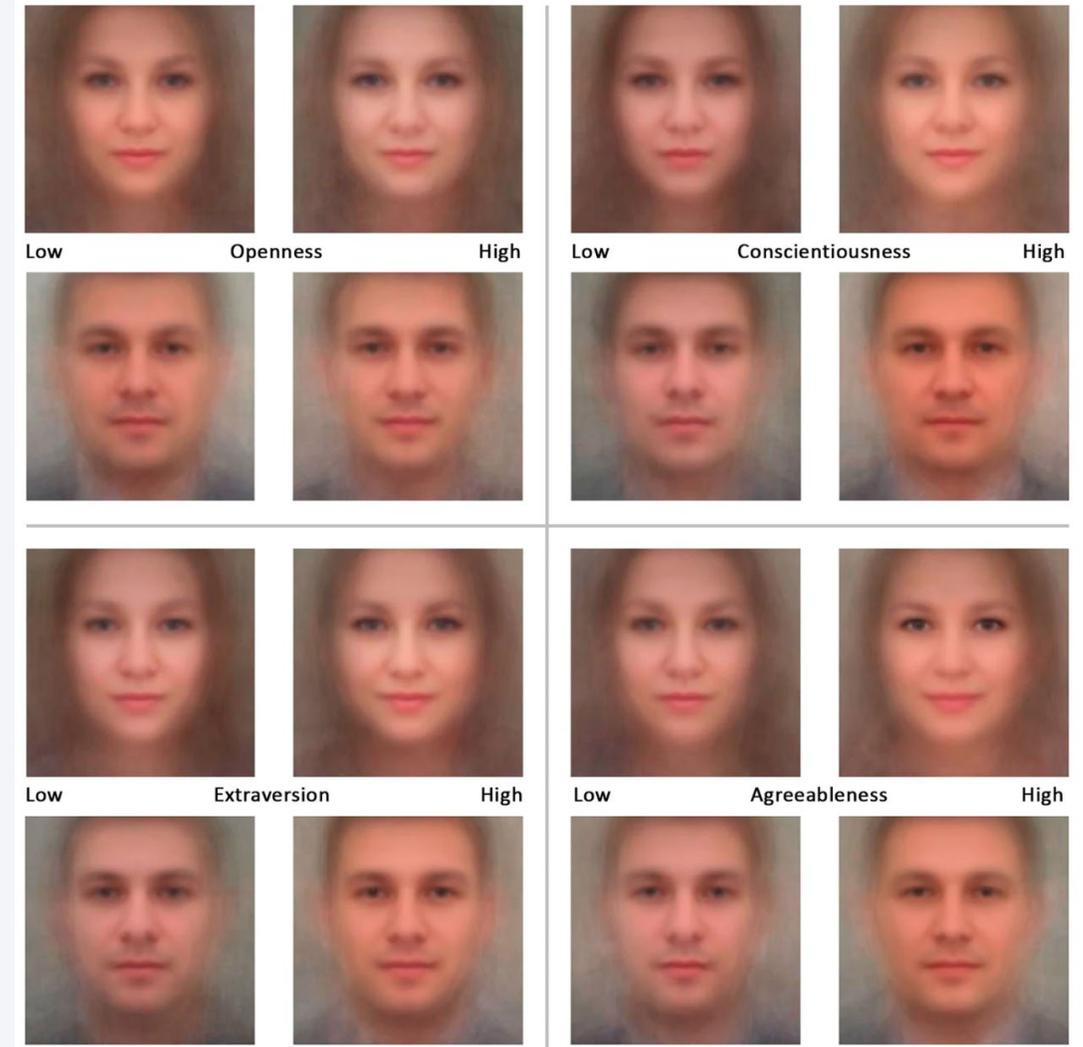
«Big 5» Personality traits

- Openness
- Conscientiousness
- Extraversion
- Agreeableness
- Neuroticism



*«For example, the compensation disparity between individuals in the top quintile versus the bottom quintile of 'desirable' Photo Big 5 personality traits is larger than the compensation gap observed between Black and White graduates for men, and about 65% of the Black-White compensation gap for women.»*

Marius Guenzel, Shimon Kogan, Marina Niessner, Kelly Shue: AI Personality Extraction from Faces: Labor Market Implications, Working Paper: [Research — Marius Guenzel](https://doi.org/10.1038/s41598-020-65358-6)



Kachur, A., Osin, E., Davydov, D. et al. Assessing the Big Five personality traits using real-life static facial images. *Sci Rep* **10**, 8487 (2020). <https://doi.org/10.1038/s41598-020-65358-6>

# Non-discrimination vs Fairness vs Bias

## Legal definition of non-discrimination

*“when a person is **treated differently** solely based on the belonging to a **specific group**, that has tended to have been historically or tends to be in the current social reality **excluded or considered inferior**.*

*Discrimination is a **qualified unequal treatment** of a person compared to another in a **comparable situation**, by effecting a **disadvantage** that has to be considered **degrading** or **excluding**, because it is linked to **criteria** of differentiation that are difficult to abandon and are **integral part of the identity** of the affected person.”*

Swiss Federal Supreme Court, BGE 129 I 217, translated by the author.

## Fairness (in algorithmic system design)

Various algorithmic fairness metrics, e.g.:

- Predictive parity  
Similar characteristics, similar positive predictive value
- Equal predictive value  
Similar characteristics, similar pos. and neg. pred. value
- Error rate balance  
False pos./false neg. same for each group

Hellmann (2020)

## Bias

- Technical bias
- Social bias

Wachter (2021)



# Countering digital discrimination through the law

## Source of discrimination

Data

Algorithm

User

Meaning

## Possible Legal Measures

Quality | Representativeness | Historical | Measurement | Aggregation etc.

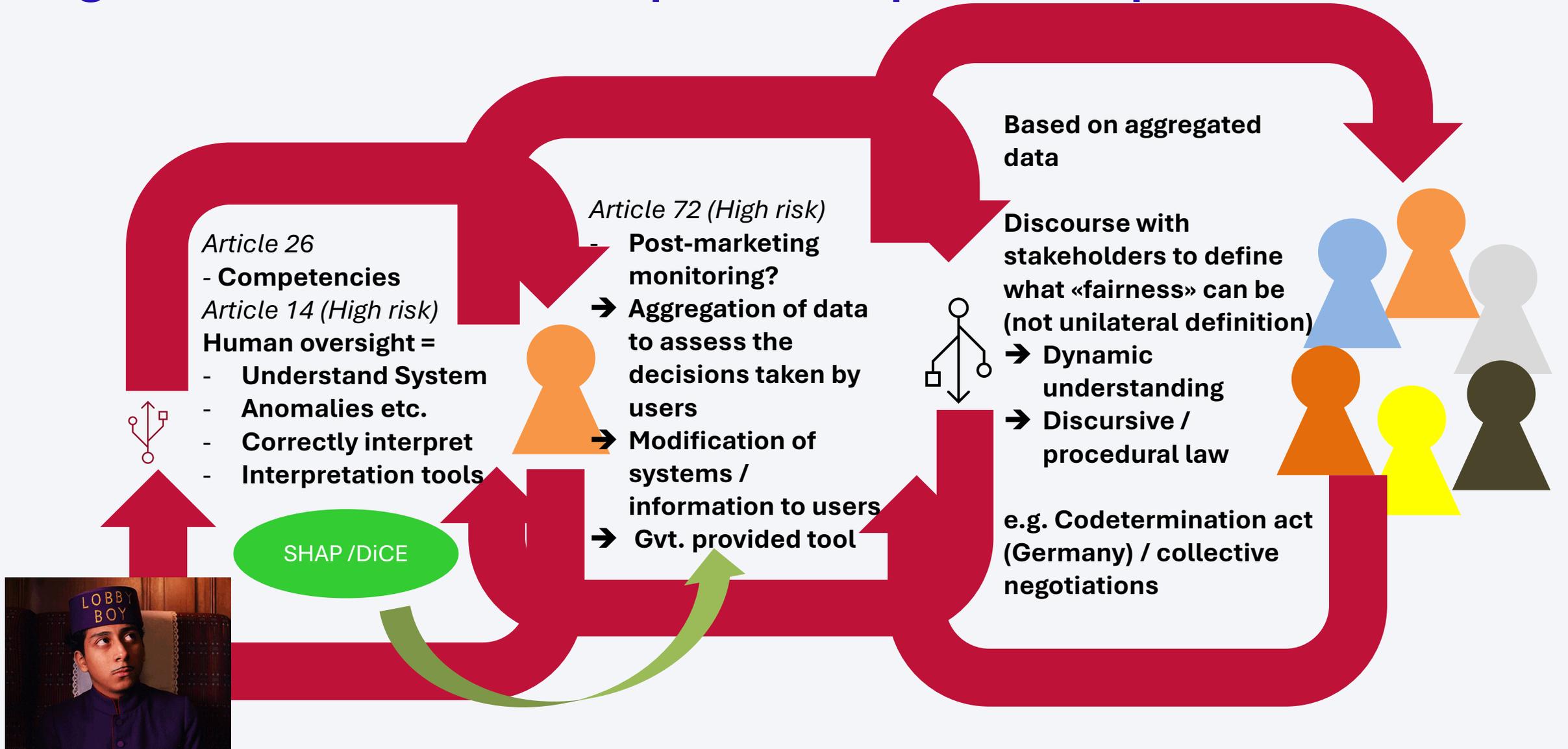
Design | Audits

Responsibility for «off-label» use | Explanation

“Algorithmic groups” | “Algorithmic discrimination” -> **scale** | New legal concept (Fairness?)



# Augmented human in the loop in the loop in the loop



## Society in the loop

General observation re. regulation of the digital

- Complexity
- Procedural law (not “if-then” law)



Legal uncertainty

### **Discussion**

Who participates? Who organises?

Information at disposal?

Outcome of the discussion?

(Legal) effect?

**Thank you!**

